AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): An apparatus measuring the parameters in a volume with V=V(t), where t is time; the apparatus comprising:

two signal sources A=A(t), B=B(t) with $A(t)=B(t)K_0$, where $K_0>1$, $V(t)=B(t)K_1$, where K_0, K_1 are stationary in a time interval t_0, where t_0 is any real value; and

detectors to measure the $B'(t)=B(t)+N_B(t)$ and the one assigned as $C'(t)=C(t)+N_A(t)$, where C'(t) can be either $V'(t)=V(t)+N_V(t)$ or $A'(t)=A(t)+N_A(t)$, $N_B(t)$ is the noise of B(t), $N_A(t)$ is the noise of A(t), and $N_V(t)$ is the noise of V(t) during the measurement time interval t_0,

wherein the measured signals B'(t) and C'(t) are transferred into electro optical signals and sent into a data processor to analyze either K_0 or K_1.

Claim 2 (original): An apparatus as claimed in Claim 1 wherein V=V(t) comprises:

an additional property of V(t)=K2P(t), where P(t) is the pressure in V(t), K2 is stationary in the time interval t0, and t0 is any real number; and

detectors to measure $P'(t)=P(t)+N_P(t)$, wherein $N_P(t)$ is the noise of P(t) during the measurement time interval t_0, to transfer the measured B'(t) and P'(t) into electro-optical signal and send the signal into a data processor to analyze K_2.

Claim 3 (original): An apparatus as claimed in Claim 2, wherein the concentration of B is calculated from K_2.

Claim 4 (original): An apparatus as claimed in Claim 2, wherein the elasticity of V(t) is calculated from K_2.

Claim 5 (original): An apparatus as claimed in Claim 2, wherein the t_m is found at which $V(t_m)=V$ at maximum volume from A(t) or P(t).

Claim 6 (original): An apparatus as claimed in Claim 5, wherein the $V(t_m)$ is guiding the injection of an ingredient into V at t_m.

Claim 7 (original): An apparatus as claimed in Claim 1, wherein K_0 or K_1 is used to analyze the concentration of B.

Claim 8 (original): An apparatus as claimed in Claim 2, wherein K_2 is used to analyze the concentration of B.

Claim 9 (currently amended): An apparatus as claimed in Claim ~~1 or~~ 2, wherein one of the P'(t) or C'(t) is assigned as E'(t), said data processor analyze the original data B'(t) and E'(t) by the following steps:

performing a mathematical transformation T on both E'(t) and B'(t);

estimating K_R from the following relation: $F_i[E'(t)]/Fi[B'(t)] \approx K_R$, R:0, or 1, or 2 accordingly where F_i is the i^{th} order component of the transformation T; and

determining the ratio of two signals E(t) and B(t) from the estimated K_R.

Claim 10 (original): An apparatus as claimed in Claim 9, wherein the mathematical transformation T is linear, said processor further performing the steps of:

identifying and estimating $F_i[N_B(t)]$ by the noise around $F_i[E(t)]$; and

determining the estimated K_R from the following relation:

$$\{F_i[E'(t)]-F_i[N_B(t)]\}/\{F_i[B'(t)]-F_i[N_B(t)]\}\approx K_R.$$

Claim 11 (original): An apparatus as claimed in Claim 9, the processor further performing the step of:

approximation K_R from the largest value of Fi[E'(t)]-Fi[NB(t)] for all kinds of linear transformation T and all possible orders of the transformation T, based on the following relation:

$$\{F_i[E'(t)]-F_i[N_B(t)]\}/\{F_i[B'(t)]-F_i[N_B(t)]\}\leq K_R.$$

Claim 12 (original): An apparatus as claimed in Claim 9, wherein

E'(t) is statistically confident to be not noisy such that $N_E(t)\approx 0$,

$E'(t)=E(t)+N_E(t)\approx E(t)$,

$B'(t)=B(t)+N_B(t)$, and

$E(t)=K_R*B(t)$,

said method comprising the steps of:

performing a mathematical transformation T on both E'(t) and B'(t);

estimating K_R from the following relation:

$F_i[E'(t)]/Fi[B'(t)]\approx$ KR

where Fi is the i^{th} order component of the transformation T and the position of Fi[B'(t)] is identified by the noise around $F_i[E'(t)]$; and

determining the ratio of two signals E(t) and B(t) from the estimated K_R.

Claim 13 (original): An apparatus as claimed in Claim 12, wherein the mathematical transformation T is linear, further comprising the steps of:

identifying and estimating $F_i[N_B(t)]$ by the noise around $F_i[E(t)]$, and denoting the estimating of $F_i[N_B(t)]$ to be $F_i[N_E(t)]$; and

estimating K_R from the following relation:

$$F_i[E(t)]/\{F_i[B'(t)]-F_i[N(t)]\}\approx K_R.$$

Claim 14 (original): An apparatus as claimed in Claim 13, further comprising the steps of:

approximation K_R from the largest value of Fi[E'(t)]-Fi[NB(t)] for all kinds of linear transformation T and all possible orders i of the transformation T, based on the following relation:

$$F_i[E(t)]/\{F_i[B'(t)]-F_i[N(t)]\} \leq K_R.$$

Claim 15 (currently amended): An apparatus as claimed in Claim ~~10 or 13~~ 9, wherein the transformation T is Fourier transform.

Claim 16 (original): An apparatus as claimed in Claim 15, wherein the F_i is F_1, the first harmonic of the Fourier transform.

Claim 17 (original): An apparatus as claimed in Claim 9, wherein the step for determining a ratio of two signals E(t) and B(t) based on two real signals E'(t) and B"(t) including noise $N_E(t)$ and $N_B(t)$, respectively, wherein:

E'(t) is a least noisy signal;

$E'(t)=E(t)+N_E(t)$,

$B'(t)=B(t)+N_B(t)$, and

$E(t)=K_R*B(t)$,

comprising the steps of:

identifying the minimum of B(t), $B'(t)_{min}$, by E'(t); and

removing the static noise by $[B'(t)-B'(t)_{min}]$.

Claim 18 (original): An apparatus as claimed in Claim 17, further comprising the steps of approximating K_R by using the following relation:

Maximum of $[E(t)-E(t)_{min}]$/Maximum of $[B(t)-B(t)_{min}] \approx K_R$,

where $E(t)_{min}$ and $B(t)_{min}$ are the minimum of E(t) and B(t), respectively.

Claim 19 (original): An apparatus as claimed in Claim 17, further comprising the steps of approximating K_R by using the following relation:

$F_i[E(t)-E(t)_{min}]/F_i[B'(t)-B(t)_{min}]/ \approx K_R$,

where both E(t) and B(t) are periodic and $E(t)_{min}$ and $B(t)_{min}$ are the minimum of E(t) and B(t), and F_i is the i^{st} order of a transformation.

Claim 20 (original): An apparatus as claimed in Claim 2, wherein the volume change in a periodic way.

Claim 21 (original): An apparatus as claimed in Claim 1, wherein the signal comprises induced signal.

Claim 22 (original): An apparatus as claimed in Claim 21, wherein the signal comprises and electromagnetic wave.

Claim 23 (original): An apparatus as claimed in Claim 21, wherein the induced signal comprises mechanical wave.

Claim 24 (original): An apparatus as claimed in Claim 1, wherein a signal source in the volume comprises a marker.

Claim 25 (original): An apparatus as claimed in Claim 1, wherein the volume comprises blood.

Claim 26 (original): An apparatus as claimed in Claim 1, wherein the volume comprises tissue.

Claim 27 (original): An apparatus as claimed in Claim 1, wherein a signal source comprises hemoglobin.

Claim 28 (original): An apparatus as claimed in Claim 1, wherein a signal source comprises uric acid.

Claim 29 (original): An apparatus as claimed in Claim 2 further comprises a pressure source for generating the volume change.

Claim 30 (original): An apparatus as claimed in Claim 1, wherein volume change in a periodic way.

Claim 31 (original): An apparatus as claimed in Claim 9, wherein the volume comprises blood, the blood pressure is measured by signal E'(t).

Claim 32 (original): An apparatus as claimed in Claim 31, further comprising a instrument for measuring the blood flow F'(t) in the volume, and means for determining K_p, which is an indicator of perfusion efficiency, based on the following relation: $F(t)= K_pE(t)$.

Claim 33 (original): An apparatus as claimed in Claim 6, further comprising an ingredient detector for injecting another ingredient in accordance with the result of the detector.

Claim 34 (original): An apparatus as claimed in Claim 33, wherein said ingredient comprises glucose and said another ingredient comprises insulin.

Claim 35 (original): An apparatus as claimed in Claim 1, wherein signal is transmitted through communication.

Claim 36 (original): An apparatus as claimed in Claim 1, wherein the volume is in a man-made system.

Claim 37 (original): An apparatus as claimed in Claim 1, wherein the signal source comprises DNA.

Claim 38 (original): An apparatus as claimed in Claim 1, wherein the signal source comprises RNA.

Claim 39 (original): An apparatus as claimed in Claim 1, wherein the signal source comprises protein.

Claim 40 (original): An apparatus as claimed in Claim 1, wherein the signal source comprises colored molecular.

Claim 41 (original): An apparatus as claimed in Claim 4, wherein the V is a pixie of $V(x,y,z)$, a much larger volume.

Claim 42 (original): An apparatus as claimed in Claim 41, wherein the $V(x,y,z)$ is compared with $V(x+\Delta x,y+\Delta y,z+\Delta z)$ in which Δx, Δy, Δz are the size of the pixie.

Claim 43 (original): An apparatus as claimed in Claim 41, wherein the $V(x,y,z)$ is compared with $Vs(x,y,z)$ a stored value in the processor.

Claim 44 (original): An apparatus as claimed in Claim 1, wherein the signal source comprises glucose.

Claim 45 (original): An apparatus as claimed in Claim 1, wherein the signal source comprises cholesterol.

Claim 46 (original): An apparatus as claimed in Claim 1, wherein the signal source comprises triglycerol.

Claim 47 (original): An apparatus as claimed in Claim 1, wherein the signal source comprises enamation.